Original Article

Surgery

Removal of Mesh; a Prerequisite to Resolve the Infection of Inguinal Hernia Repair

1. Abdul Qadeer 2. Shah Muhammad Noonari 3. Santosh Kumar

1. Asstt. Prof. of Surgery, LCM&D, Karachi 2. Assoc. Prof. of Surgery, LCM&D, Karachi
3. Assoc. Prof. of Anatomy, JSMU, Karachi

ABSTRACT

Objective: To evaluate the rate of infection and efficacy of antibiotics with and without removal of infected mesh in the operated patients of inguinal hernia repair with polypropylene mesh.

Study Design: prospective observational study

Place and Duration of study: This study was conducted at the Department of surgery, Baish general hospital, Kingdom of Saudi Arabia from June 2007 to December 2011.

Materials and Methods: The male patients with ASA grade I & II were selected for the study. Their data was collected on SPSS-10. Diabetic patients were switched to short acting insulin perioperatively. Lichtenstein onlay mesh repair was performed with prolene mesh. Cefuroxime 1.5 g was given as prophylactic antibiotic at the time of induction of anesthesia, followed by three intravenous doses postoperatively.

Results: Out of total 36 operated cases, two (5.55%) had infection of mesh. They started to discharge purulent material after a period of about six months of operation. Pus c/s revealed Staph. aureus. The bacteria were sensitive to all cephalosporin groups. Oral cephalexin was prescribed for seven days initially which suppressed the discharge for few days but restarted it after 2 weeks time of stopping the oral antibiotic. Ultimately the mesh was removed to resolve the infection. No recurrence was observed within I year of follow-up.

Conclusion: Infection of mesh in inguinal hernia repair resolves after the infected mesh is removed.

Key words: Inguinal hernia, Mesh repair, Polypropylene, Herniorrhaphy, Hernioplasty, Infection.

INTRODUCTION

The cumulative incidence of inguinal hernia is 13.9% in the male and 2.1% in the female.[1] Inguinal hernia repair is the most frequently performed operation in general surgery. Many methods of repair of hernia have been tried like Basinni, darning, Shouldice etc till the era of prosthetic mesh started. The reason of trying the new procedures was mainly high rate of recurrence (10-15%).[2] The standard method for inguinal hernia repair had changed little over a hundred years until the introduction of synthetic mesh. The mesh can be placed by either using an open approach or by using a minimal access laparoscopic technique.[3,4] Laparoscopic repair with mesh placement has less morbidity and early recovery.[5,6,7,8] Prosthetic mesh repair has become the gold standard for elective management of inguinal hernias. On one hand, the tension-free mesh repair has reduced the incidence of recurrence (<5%); while on the other hand, the use of prosthetic material has developed fear of complication, mainly infection.[8,9] Laparoscopic facilities are not available in the majority of local hospitals. Most of the surgical units depend upon open procedures.[10]

Approximately 35,000 Staphlococcus aureus surgical wound infections occur annually in the United States.[11] Appropriate use of antibiotic prophylaxis reduces the frequency of deep wound infections after clean surgery. However, there may be important differences in the prophylactic efficacy of various cephalosporins.[12]

MATERIALS AND METHODS

This prospective observational study was conducted at the department of surgery, Baish General Hospital, Kingdom of Saudi Arabia from June 2007 to December 2011. Male patients of different age groups ranging from 18 to 70 years were operated. Female patients were not included in the study due to insufficient number. Their data was collected on SPSS-10. The patients of ASA grade 1 and 2 were included in the study. Two patients had non-insulin dependent diabetes mellitus which were switched to the short acting insulin perioperatively. The patients were operated under general or spinal anesthesia. Skin was shaved on the day of surgery. Povidone-Iodine was used for skin preparation on table before surgery. Cefuroxime 1.5 gram i.v. was injected as prophylactic antibiotic at the time of induction of anesthesia followed by 3 postoperative doses. A standard skin incision was given. The procedure performed was Lichtenstein onlay mesh repair. The average time duration of operation was 50 minutes. Total 36 patients were operated. None was introduced drain though few had mild oozing of blood peroperatively.

RESULTS

Out of total 36 operated cases, thirty were indirect, four were direct and two were pantaloon inguinal hernias. Their median age was 51 years. Two (5.55%) had infection of mesh (at different time of study). The

patients who had infection were not those having diabetes mellitus, but obese. The main postoperative complain of all the patients was mild aching pain at the operation site which was relieved by NSAIDs. They started to discharge purulent material after a period of about six months of the operation. Pus c/s was taken which revealed Staphylococcus aureus. The bacteria were sensitive to all cephalosporin groups. Oral second generation cephalosporin (Cefuroxime 500 mg b.i.d.) were prescribed for five days initially which suppressed the wound discharge, but restarted it after 2 weeks time of stopping the oral antibiotic. Pus c/s was taken again which revealed the same infection with S. aureus. This time injectable 3rd generation cephalosporin (Cefotaxime 1g b.i.d) was given for seven days which completely stopped the discharge from the wound. After an interval of two weeks, the purulent discharge restarted. This time the patients were re-operated to remove the prolene mesh. After removal of mesh, the wound was left open. Regular dressings were done. Injectable 3rd generation cephalosporin (Ceftazidime 1g b.i.d) was given for 5 days. The wound became clean completely. Culture report revealed no growth. The wound was closed by secondary sutures. The patients were followed up for 12 to 15 months. Neither wound infection nor immediate recurrence was observed during this period.

DISCUSSION

Lichtenstein only mesh repair has been considered as gold standard operation for inguinal hernia.[7] Though it has low rate of recurrence as compared to early standard methods of repair, there is always a fear of infection due to prosthesis.[13] Late onset of mesh infection observed in our study following hernia repair is one of the complications observed in other studies. It does not seem to be related to the type of prosthetic material used or antibiotic prophylaxis.[14,15] The rate of infection in our study (5.5%) has been observed in various clean surgeries.[16] We observed that the deep-seated infection did not resolve with antibiotics till the mesh was removed. *Fawole AS et al*. also suggest that there should not be unnecessary delay in removing an infected mesh to achieve complete resolution of infection. They also found negligible rate of recurrence following removal of an infected mesh. It is contrary to the fear that the removal of the mesh would certainly lead to the recurrence. The reason of the low recurrence suggested by them is that the mesh leads to the fibrous reaction evoked within the fascia transversalis by the prosthetic material rather than physical barrier.[17] Both of the infected cases in our study had a common factor of obesity which possibly could be an independent provoking factor leading to the prosthetic infection.[18]

CONCLUSION

Deep seated mesh-infection in inguinal hernia repair heals after the infected mesh is removed. Moreover, there should not be unnecessary delay to remove it.

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Address for Corresponding Author:
Dr. Abdul Qadeer,
B-11, Sana Avenue
Gulistan-e-Jauhar Block 12, Karachi.
Cell No. 03323646799
Email: drqadeermemon@yahoo.com